

**CLAIMS**

1. A method of testing communications lines comprising the steps of connecting parameter measuring apparatus across at least two conducting wires, applying a voltage  
5 across said conducting wires, varying said voltage or current derived there from with time in accordance with a predetermined pattern, measuring parameters at intervals over a period of time and recording the parameter values, and comparing said parameter value variation over time with one or more known patterns of parameter value variation to determine status of the communications line under test.
- 10 2. A method of testing communications lines as claimed in claim 1 in which the test patterns include line signatures derived from parameters including positive, negative and reverse polarity tests between the a and b legs of a conducting pair.
- 15 3. A method of testing communications lines as claimed in claim 1 or claim 2 in which the test patterns include line signatures derived from parameters including positive and negative polarity tests between each of the a leg and the b leg and earth.
- 20 4. A method of testing communications lines as claimed in any one of claims 1 to 3 in which a plurality of line signatures are measured during the test time interval each of which is compared with stored patterns derived from previously tested lines exhibiting fault characteristics or derived hypothetically.
- 25 5. A line test apparatus comprising processing means operating in accordance with the method of claims 1 to 4 and having at least two connections for coupling parameter measuring devices to one or more metallic paths of a conducting pair and/or an earth connection, storage means for recording parameter measurement over a period of time and means to control the application of electrical stimuli during said period of time whereby line signatures of a metallic pair may be obtained for comparison with one or  
30 more stored patterns of parameter values.
6. Line test apparatus as claimed in claim 5 comprising a unit including processing capability for capturing and analysing line signatures.

7. Line test apparatus as claimed in claim 5 comprising a plurality of units at least one of which includes means to apply the electrical stimuli and means for coupling parameter measuring devices, the other including means to process line signatures of a metallic pair under test.

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8. Line test apparatus as claimed in claim 7 in which the units comprise a test head and a processor unit respectively, each communicating with the other by low power radio or infra red coupling.

10 9. Line test apparatus as claimed in claim 7 in which the units comprise a test head and a processor unit respectively, each communicating with the other by direct coupling.

10. Line test apparatus as claimed in claim 8 or claim 9 in which the test head includes means to capture and store line signatures for subsequent transfer to and  
15 analysis by the processor unit.

11. Line test apparatus as claimed in any one of claims 5 to 10 further comprising a remote unit operating under the control of the processor unit to apply test patterns and control the application of loop resistance values and/or current/voltage and/or frequency  
20 signals to a line under test.

12. Line test apparatus as claimed in claim 11 in which the apparatus comprises a or the test head and in which signalling to control the remote unit is transmitted from the test head to the remote unit under the control of the processor unit.

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